Volunteer Lake Assessment Program Individual Lake Reports

JACKMAN RESERVOIR, HILLSBOROUGH, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	44,223	**Max. Depth (m):**	9.6	**Flushing Rate (yr^{-1})**	10.6
Surface Area (Ac.):	520	**Mean Depth (m):**	4.6	**P Retention Coef:**	0.36
Shore Length (m):	11,300	**Volume (m^3):**	9,008,500	**Elevation (ft):**	770

TROPHIC CLASSIFICATION

Year	Trophic class

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

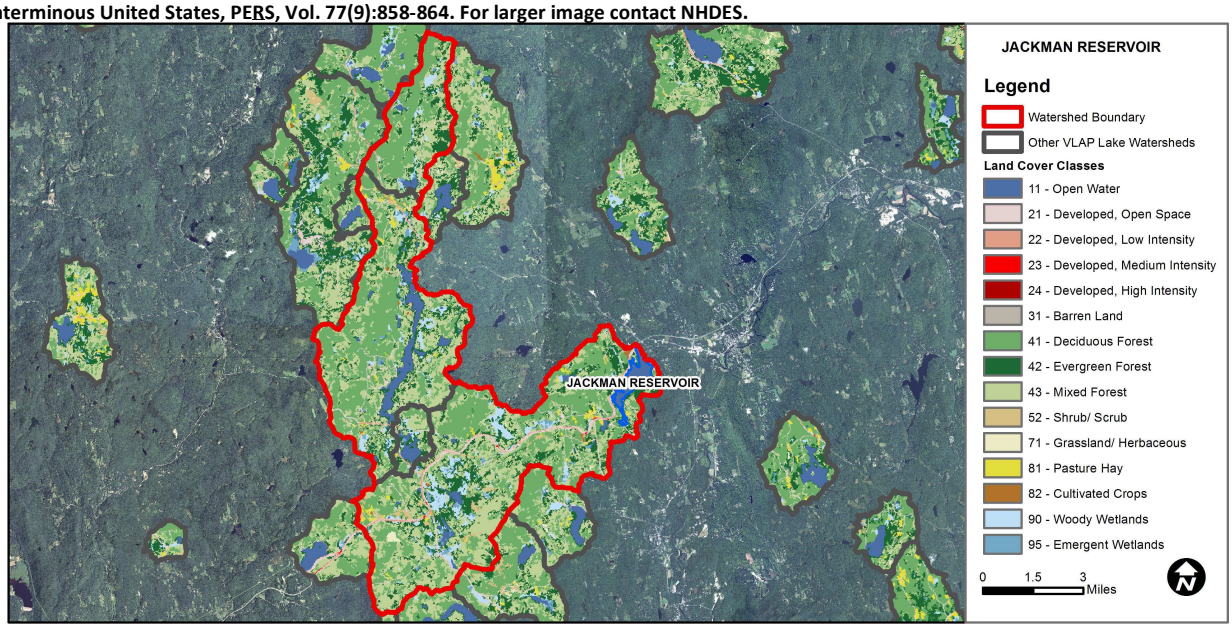
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Encouraging	<5 samples and median is < threshold. More data needed.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Encouraging	< 10 samples and no exceedance of criteria. More data needed.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

JACKMAN RESERVOIR - MANAHAN PARK TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



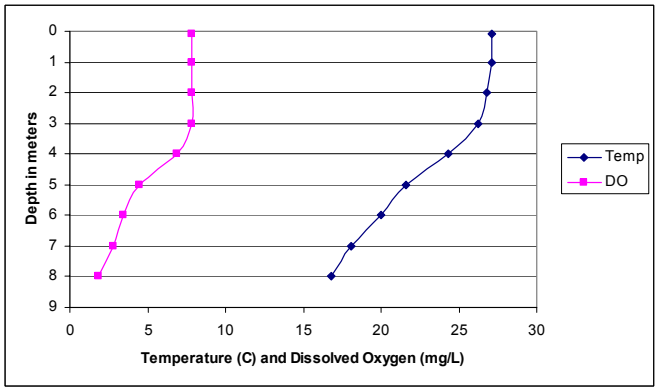
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	4.77	Barren Land	0.02	Grassland/Herbaceous	0.22
Developed-Open Space	3.15	Deciduous Forest	34.97	Pasture Hay	1.13
Developed-Low Intensity	0.91	Evergreen Forest	15.8	Cultivated Crops	0.16
Developed-Medium Intensity	0.04	Mixed Forest	31.84	Woody Wetlands	4.52
Developed-High Intensity	0	Shrub-Scrub	1.24	Emergent Wetlands	1.08

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
JACKMAN RESERVOIR (FRANKLIN PIERCE LAKE), HILLSBOROUGH, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and below the NH lake median.
- **CONDUCTIVITY/CHLORIDE:** Conductivity was relatively low and below the NH lake median.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and well below the NH lake median. Phosphorus levels were slightly elevated in the North Branch tributary following a significant storm event.
- **TRANSPARENCY:** Transparency was slightly greater than the NH lake median and was consistent with 2011 levels.
- **TURBIDITY:** Turbidity levels were slightly elevated in the North Branch tributary following a significant rain event.
- **PH:** pH levels were lower than desirable and could be critical to aquatic life.
- **RECOMMENDED ACTIONS:** Increase monitoring frequency to three events per summer to better assess fluctuations in summer water quality and establish water quality trends. Conduct a stream walk to identify potential sources of elevated phosphorus and turbidity in the North Branch and conduct bracket sampling if necessary. For assistance, please contact the VLAP Coordinator.

Dissolved Oxygen & Temperature Profile



Station Name	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Deep Epilimnion	2.20	3.76	32.6	5	3.48	4.18	0.44	6.16
Deep Hypolimnion			32.2	8			1.00	5.48
North Branch			40.3	15			1.41	6.36

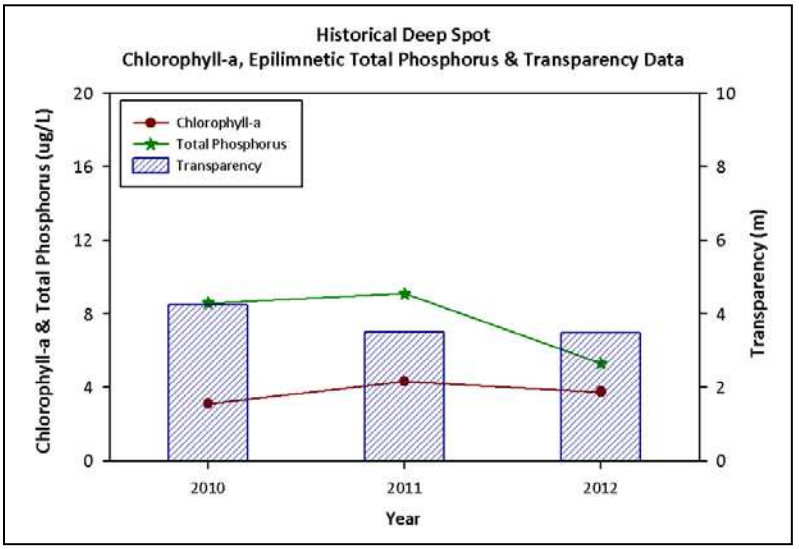
Table 1. 2012 Average Water Quality Data for JACKMAN RESERVOIR

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	Additional data necessary for trend analysis.
Transparency	N/A	Additional data necessary for trend analysis.
Phosphorus (epilimnion)	N/A	Additional data necessary for trend analysis.



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